

What is claimed is:

- 1 1. A mobile communicator comprising:
2 a search receiver to search for a base station using a search window size that
3 adapts over time based on a changing channel condition between the base station and
4 the mobile communicator.

- 1 2. The mobile communicator of claim 1, wherein:
2 said search receiver uses a first search window size to search for the base station
3 during normal operation and changes to a second, larger search window size to search
4 for the base station when received energy is detected outside of said first search
5 window size for the base station.

- 1 3. The mobile communicator of claim 2, wherein:
2 said first search window size is selected to encompass a majority of possible
3 delay spread conditions between the base station and the mobile communicator.

- 1 4. The mobile communicator of claim 1, wherein said search receiver includes:
2 a searcher having a variable size search window; and
3 a search window size controller to control the search window size of the
4 searcher, said search window size controller to occasionally change the search window
5 size of the searcher to a full search window size for use in determining a present
6 channel condition between the base station and the mobile communicator.

- 1 5. The mobile communicator of claim 4, wherein:
2 said search window size controller determines a subsequent search window size
3 for the searcher based on the present channel condition.

- 1 6. The mobile communicator of claim 4, wherein:
2 said full search window size is related to an expected worst case delay spread in
3 the channel between the base station and the mobile communicator.

1 7. The mobile communicator of claim 4, wherein:
2 said search window size controller estimates a delay spread of the channel
3 between the base station and the mobile communicator and determines a subsequent
4 search window size for the searcher based on the estimated delay spread.

1 8. The mobile communicator of claim 7, wherein:
2 said search window size controller determines a smallest search window size
3 that encompasses all significant paths within the estimated delay spread of the channel.

1 9. The mobile communicator of claim 7, wherein:
2 said search window size controller selects the subsequent search window size
3 from a plurality of predetermined search window sizes.

1 10. The mobile communicator of claim 4, comprising:
2 a quality measure unit to determine a quality measure for the base station using
3 an output of the searcher.

1 11. The mobile communicator of claim 1, wherein:
2 said search receiver searches for multiple base stations using corresponding
3 search window sizes that adapt over time based on changing channel condition between
4 each corresponding base station and the mobile communicator.

1 12. A method for searching for a base station from a mobile communicator,
2 comprising:
3 searching for the base station using a search window; and
4 adapting a size of the search window over time based on a changing channel
5 condition between the base station and the mobile communicator.

1 13. The method of claim 12, wherein:
2 adapting a size of the search window includes:
3 occasionally searching for the base station using a full search window
4 size; and
5 changing the search window size based on a result of one or more full
6 search window searches.

1 14. The method of claim 12, wherein:
2 adapting a size of the search window includes:
3 estimating a delay spread of a channel between the base station and the
4 mobile communicator; and
5 selecting a smallest search window size that encompasses the estimated
6 delay spread.

1 15. The method of claim 12, wherein:
2 adapting a size of the search window includes:
3 determining whether receive energy has been detected outside a first
4 search window size; and
5 changing the size of the search window to the first search window size
6 when receive energy has not been detected outside said first search window
7 size.

1 16. A method for searching for a base station from a mobile communicator,
2 comprising:
3 searching for the base station using a first search window size;
4 occasionally checking for significant received energy outside of said first search
5 window size for the base station; and
6 searching for the base station for a predetermined period using a second search
7 window size that is greater than said first search window size when significant received

8 energy is detected outside of said first search window size during occasionally
9 checking.

1 17. The method of claim 16, wherein:
2 occasionally checking for significant received energy outside of said first search
3 window size includes searching for the base station using a full search window size that
4 is greater than said first search window size.

1 18. The method of claim 17, wherein:
2 said first search window size is a size that is expected to encompass a majority
3 of possible delay spread conditions in a channel between the base station and the
4 mobile communicator; and
5 said full search window size is a size that is expected to encompass a worst case
6 delay spread condition in the channel between the base station and the mobile
7 communicator.

1 19. The method of claim 17, wherein:
2 said second search window size is equal to said full search window size.

1 20. The method of claim 17, wherein:
2 said second search window size is less than or equal to said full search window
3 size.

1 21. The method of claim 16, wherein:
2 occasionally checking includes checking at regular intervals.

1 22. The method of claim 16, wherein:
2 occasionally checking includes estimating a delay spread for the channel
3 between the base station and the mobile communicator; and

4 said second search window size is determined based upon the estimated delay
5 spread.

1 23. A mobile communicator that is programmed to search for one or more base
2 stations using the method of claim 16.

1 24. A method for searching for a base station from a mobile communicator,
2 comprising:
3 first searching for the base station using a large search window size;
4 determining a new search window size to search for the base station based on a
5 result of said first searching; and
6 second searching for the base station using the new search window size.

1 25. The method of claim 24, wherein:
2 second searching includes searching for the base station using the new search
3 window size for a first time duration.

1 26. The method of claim 25, further comprising:
2 repeating first searching, determining, and second searching after said first time
3 duration has elapsed.

1 27. The method of claim 26, further comprising:
2 adapting a length of said first time duration over time based on a predetermined
3 criterion.

1 28. The method of claim 24, wherein:
2 determining a new search window size includes selecting one of a plurality of
3 predetermined search window sizes.

1 29. The method of claim 24, wherein:
2 determining a new search window size includes determining a size that will
3 encompass a delay spread associated with the base station.

1 30. The method of claim 24, wherein:
2 determining a new search window size includes:
3 determining whether significant received energy was detected during
4 said first searching that was outside of a first search window, said first search
5 window having a size that is smaller than said large search window size; and
6 setting the new search window size equal to the size of the first search
7 window when significant received energy was not detected outside of said first
8 search window.

1 31. A mobile communicator that is programmed to search for one or more base
2 stations using the method of claim 24.